

as from 30 to 35, while for September, 1914, in the five-degree square from latitude 45° to 50° N. and longitude 45° to 50° W. fog was observed on 8 days, or a percentage of 27. The normal percentage for the square from latitude 45° to 50° N. and longitude 25° to 30° W. varies from 20 to 25, while for the month under discussion it was only 10. In the square from latitude 55° to 60° N. and longitude 15° to 20° W. it was 3 and the normal 5, showing that taken as a whole the amount of fog along the northern sailing routes was somewhat below the normal.

Temperature.—The temperatures were very generally above normal over the North Atlantic during the month, with the greatest positive departures along the European coast where they ranged from $+6^{\circ}$ off the coast of Scotland to $+2^{\circ}$ at the thirtieth parallel of latitude. Over the waters adjacent to the American coast the departures were less and over the adjacent land areas they varied from $+2.5^{\circ}$ at Eastport to -0.3° at New York, -2.3° at Atlantic City, -2.7° at Hatteras, -0.1° at Jacksonville, and -0.5° at Key West. There was as usual rain nearly every day over some portions of the trans-Atlantic routes, though no hail or snow was reported during the month.

A PACIFIC HURRICANE OF SEPTEMBER, 1915.

By JAMES H. KIMBALL, Observer.

[Dated: Weather Bureau, Marine Center, New York, N. Y., Oct. 22, 1915.]

Violent storms occurring in the tropical waters of the Pacific Ocean adjacent to the North American Continent are so infrequent that in the preparatory discussion of a large number of observations gathered from that section none in the past five years indicates sufficient storm development to warrant tracing on the Pilot Charts of the United States Hydrographic Office. True, there have been in recent times a few disturbances that have had their inception somewhat to the east of the Hawaiian Islands, whence they swept northwestward, recurving near Japan and afterwards following the usual storm track leading to Alaska.

Well to the east of the Hawaiian Islands lies the region of el Cordonazo de San Francisco,¹ the fanciful name given by the Spaniards to the violent winds that occur on the west coast of Mexico, one in every seven or eight

years, toward the close of the rainy season; that is, about the time of St. Francis's Day, October 4. These storms attain hurricane force, and the observations that follow seem to furnish measurements of one of them.

While the storm experienced by the *Calliope* does not appear to have had sufficient strength to insure its passage westward to the region of storm inception lying near the Hawaiian Islands, still the suggestion is inevitable that future observations may show that a storm track crosses the Pacific from Mexico to Japan.

Extract from meteorological log of steamship Calliope, Capt. Chas. E. Topp, Honolulu to Panama, September 4-5, 1915.

- Sept. 4. 2 P. M. Freshening wind from north and backing to NNW.; barometer, 29.90 inches; deep NE. swell.
6 P. M. Strong northerly wind; rising sea; squally.
8 P. M. Fresh NNE. gale; squalls increasing in force and more frequent; heavy rain; barometer, 29.70 inches.
11 P. M. Whole gale from NNE., heavy sea and fierce squalls; barometer 29.50 inches.
Midnight. No change in weather.
- Sept. 5. 2 A. M. Wind suddenly fell to almost a calm and sea falling rapidly; heavy frequent lightning from the south.
2 to 3 A. M. Light wind gradually hauling from NNE. through east to south.
3:15 A. M. Wind blowing from the south a whole gale; sea rose very quickly from that quarter; also very heavy rain squalls. When wind shifted the barometer started to rise almost as rapidly as it had fallen. Wind blew steadily from s. to ssw., and the weather gradually moderated so that I was able to keep away on my course at 6 P. M. Previous to this was hove to and going half speed. During the early hours of the morning of the 5th had tarpaulins ripped off some of the hatches.—Chas. E. Topp.

On the 5th, at 2 A. M. (lat. $15^{\circ} 40'$ N. and long. $109^{\circ} 40'$ W.), with the wind NNE. and force 10 the barometer fell to its lowest reading for the storm, viz, 29.30 inches. Shortly afterwards the wind fell suddenly to the calm as mentioned in the second paragraph of the report.

From the above report it appears that a well-formed vortex of moderate violence prevailed on September 4-5, 1915, about 500 miles south of the most southerly point of Lower California and slightly nearer in a northeasterly direction to Colima, Mexico. The storm, when observed by Capt. Topp, passed close to the position of his ship and was traveling from southeast to northwest.

Unfortunately there were but few readings of the barometer taken, but their number is sufficient to show a moderate though uniform gradient of a vortex having a large diameter at its lowest level.

¹ See this REVIEW, November, 1895, 28: 425.